

CLAIMS

Sub A1 > 1. A non-human bone metastasis model animal exhibiting bone metastasis of tumor cells, in which tumor cells capable of inducing bone metastasis have been introduced by peripheral administration.

2. The non-human bone metastasis model animal according to claim 1, wherein the tumor cells are human lung cancer or breast cancer derived cells highly expressing PTHrP.

3. The non-human bone metastasis model animal according to claim 1, wherein the tumor cells are cells from human lung small cell carcinoma.

4. The non-human bone metastasis model animal according to claim 1, which exhibits multi-organ metastasis of tumor cells.

5. The non-human bone metastasis model animal according to claim 4, wherein the multi-organ metastases include metastases to one or more organs selected from the group consisting of lung, liver, kidney, and lymph node.

6. The non-human bone metastasis model animal according to claim 1, wherein the animal belongs to rodents.

Sub A2 > 7. The non-human bone metastasis model animal according to claim 6, wherein the animal is mouse.

8. The non-human bone metastasis model animal according to claim 7, wherein the animal is immunodeficient mouse.

Sub A3 > 9. The non-human bone metastasis model animal according to claim 8, wherein the animal is SCID mouse.

10. A method for producing a non-human animal exhibiting bone metastasis of tumor cells, comprising the steps of:

(i) providing a non-human animal having reduced immunity; and

(ii) introducing tumor cells capable of inducing bone metastasis into the animal by peripheral administration.

11. The method according to claim 10, wherein the tumor cells are human lung cancer- or breast cancer-derived cells highly expressing PTHrP.

12. The method according to claim 10, wherein the tumor cells are cells from human lung small cell carcinoma.

Sub A4 13. The method according to claim 10, wherein the step of providing a non-human animal having reduced immunity includes a step of inactivating NK cells in the animal.

14. The method according to claim 10, wherein the step of providing a non-human animal having reduced immunity includes a step of reducing the number of NK cells in the animal.

15. The method according to claim 10, wherein the step of providing a non-human animal having reduced immunity includes a step of depleting NK cells in the animal.

16. The method according to claim 10, wherein the step of providing a non-human animal having reduced immunity includes a step of administering anti-IL-2 receptor antibody to the animal.

17. The method according to claim 16, wherein the antibody is anti-IL-2 receptor β -chain antibody.

Sub C7 18. The method according to claim 16, wherein the antibody is mouse antibody.

19. The method according to claim 10, wherein the step of introducing tumor cells capable of inducing bone metastasis to the animal by peripheral administration includes a step of injecting the tumor cells into the animal intravenously.

20. The method according to claim 10, wherein the animal belongs to rodents.

21. The method according to claim 10, wherein the animal is mouse.
22. The method according to claim 21, wherein the animal is an immunodeficient mouse.
23. The method according to claim 21, wherein the animal is SCID mouse.
24. A method for evaluating efficiencies of treatment against bone metastasis of tumor cells, comprising the step of:
 - (i) applying a treatment to the non-human bone metastasis model animal according to any one of claims 1 to 9; and
 - (ii) comparing the size and/or extent of bone metastasis, and/or symptoms resulted from bone metastasis, with control animal.
25. Use of the non-human bone metastasis model animal according to claim to any one of claims 1 to 9 for determining the effect of a test substance on bone metastasis, comprising the steps of:
 - (i) administering the test substance to the animal; and
 - (ii) comparing the size and/or extent of bone metastasis, and/or symptoms resulted from bone metastasis, with control animal.